carbohydrate side chains: serine, valine, tyrosine, histidine, threonine, and lysine. Repeating motifs are commonly recognized, e.g., Ser-Hyp4 and Val-Tyr-Lys, and similarities exist between different plant species. However, the tetra-hydroxyproline block has not been found in the sugar beet in which the sequence is interrupted: Ser-Hyp2-X-Hyp2-Thr-Hyp-Val-Tyr-Lys. Here X represents an insertion of Val-His-Glu/Lys-Tyr-Pro. Apart from this, the sugar beet extensin has a repeating sequence of amino acids analogous to the sequences found in tomato (Lycopersicon esculentum), carrot (Daucus carota L.), and tobacco (Nicotiana tabacum). The hydroxylation of proline residues is a post-translational modification by prolyl hydroxylases (E.C. 1.14.11.2), that may depend on the amino acid sequence in the extensin molecules. Thus, the dipeptide sequences Lys-Pro, Tyr-Pro, and Phe-Pro are not found to be hydroxylated in contrast to Pro-Val. Complete sequences of extensins are not easily determined because they are usually very insoluble. One approach is to investigate the soluble precursors of extensin, or to screen for extensin in a cDNA library. In dicots, hydroxyproline residues may be O-glycosylated with a single sugar (arabinose or galactose) or up to four Araf residues in an arabino-oligosaccharide. Most of the serine

[illegible] repeats in particular are

appears to be an important enzyme for normal cell morphology,.

Tobacco protoplasts treated with micromolar concentrations of 3,4-dehydro-L-proline, which is a selective inhibitor of prolyl hydroxylase, developed an abnormal cell wall structure, and cell division was inhibited.

Please amend the specification in the paragraph beginning on page 10 at line 21 and ending on page 11 at line 3 as follows.

Following in vitro testing of polysaccharides found in pectin, we have done scientific <u>in vitro</u> experiments to test synergistic effects of pectic molecules and extensin. We identified that a combination of pectic molecules with the protein extensin containing valine, tyrosine, histidine, threonine, and lysine can activate eukaryotic cells in significantly smaller concentrations than pectic molecules alone. A combination of pectin with extensin in a ratio higher than seen in natural plant cells can be used as a therapeutic method to modulate immune responses in the treatment of a broad variety of disorders including infections and cancers.